

In the Claims:

Kindly rewrite the claims as follows:

1. (Currently amended) A method of measuring ~~the a~~ QT interval of an electrocardiogram (ECG) signal wherein ~~the an~~ end of ~~the a~~ T wave is identified from ECG data, the end of the T wave being determined by reference to ~~the~~ timing of at least one intersection at which an upright T wave of a first set of derived ECG signal data intersects an inverted T wave of a second set of derived ECG signal data, the two sets of ECG data being superimposed so as to maximize ~~their~~ data fit over a segment of ~~the~~ ECG signal after a peak of the positive T wave ~~peak~~.

2. (Currently amended) ~~A~~ The method as claimed in claim 1 wherein the data fit ~~of said data~~ is maximised by a least squares calculation.

3. (Currently amended) ~~A~~ The method as claimed in claim 1 ~~or 2,~~ wherein the method comprises the steps of:

- (a) acquiring ECG signal data;
- (b) deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;
- (c) inverting the first ~~reduced noise~~ set of reduced noise ECG signal data to derive an inverted set of reduced noise ECG signal data;
- (d) identifying a portion of each set of ECG signal data corresponding to a said segment ~~after the T wave~~;
- (e) calculating an offset such as to fit the first set of data to the inverted set of data over said segment;
- (f) detecting at least one intersection between the first set of data and the inverted set of data by reference to said offset; and
- (g) determining ~~the an~~ end of said QT ~~intervals~~ interval by reference to ~~the~~ timing of the detected intersection(s).

4. (Currently amended) ~~A~~ The method as claimed in ~~claims-claim~~ claim 3 wherein in step (g) the end of the QT interval is determined by ~~the~~ a first point intersection.
5. (Currently amended) ~~A~~ The method as claimed in ~~any previous-claim~~ claim 4 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.
6. (Currently amended) ~~A~~ The method as claimed in ~~any previous-claim~~ claim 1 wherein said interval can be varied according to ~~the~~ a noise content in ~~the~~ a segment of ~~the~~ an ECG deemed to be ~~the~~ an isoelectric-line baseline segment.
7. (Currently amended) ~~A~~ The method as claimed in ~~any of claims-claim~~ claim 3 to 6 wherein the step (b) comprises calculating ~~the~~ a median signal for each time from an ensemble of ECG signals for each lead to reduce low frequency baseline noise.
8. (Currently amended) ~~A~~ The method as claimed in ~~any of claims 3 to-claim~~ claim 7 wherein the ~~method-step~~ step (b) further comprises smoothing the median ~~ensembled~~ ECG signal with a moving median filter to reduce high frequency noise.
9. (Currently amended) ~~A~~ The method as claimed in ~~any of claims 3 to-claim~~ claim 8 wherein the ~~method-step~~ step (b) further comprises filtering the ~~median-smoothed, median ensembled~~ ECG signal using a wavelet frequency thresholding technique which subtracts ~~the~~ a magnitudes of any non-zero frequency components within the isoelectric baseline ~~segment~~ segment from ~~the~~ a rest of the ECG thus further de-noising it.
10. (Currently amended) ~~A~~ The method as claimed in ~~any of claims 3 to-claim~~ claim 9 wherein the step (b) further includes vertically shifting the smoothed median ~~ensembled~~ ECG signal so that ~~the~~ a minimum value after peak of T is zero.

11. (Currently amended) ~~A-The method as claimed in any of claims 3 to claim 10 wherein the step (b) further comprises ~~the steps of~~ detecting and correcting baseline drift in the first set of ECG data.~~

12. (Currently amended) ~~A-The method as claimed in any preceding claim 11 wherein the detecting ~~step~~ includes ~~the testing for the~~ presence of a single crossing of one isoelectric line.~~

13. (Currently amended) ~~A-The method as claimed in any preceding claim 12 wherein ~~the~~ an ensembled ECG ~~can be~~ is rotated about a zero point or otherwise transformed to reconfigure the set of ECG data to have multiple crossings of said line.~~

14. (Currently amended) ~~A-The method as claimed in any of claims claim 3 to 13 wherein the step (b) further includes applying a non-linear function such as squaring ~~the~~ amplitudes of the signal for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.~~

15. (Currently amended) ~~A-The method as claimed in any of claims 3 to claim 14 wherein the step (b) further includes summing ~~the~~ squared amplitudes of ensembled orthogonal leads over all time instants to give a squared resultant vector ensembled ECG.~~

16. (Currently amended) ~~A-The method as claimed in any preceding claim 1 wherein the method further includes finding ~~the a~~ beginning of the QT interval by an established method, ~~for example from the median of ensembled ECG signals from all 12 leads.~~~~

17. (Currently amended) ~~A-The method as claimed in any preceding claim 16 wherein the method includes calculating the QT interval by subtracting the beginning of the QT interval from ~~the calculated~~ end of the T wave.~~

18. (Currently amended) ~~A-The method as claimed in any preceding claim 1 wherein the QT interval is measured for ~~the~~ squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and ~~the a~~ longest of QT measurements made in 3 dimensions is made.~~

19. (Currently amended) ~~A~~The method as claimed in ~~any preceding~~ claim 3 wherein the ECG signal data ~~may be~~is acquired in step (a) from ~~the a~~ set of standard ECG leads including I, aVf and V2.

20. (Currently amended) An apparatus for measuring the QT interval of an electrocardiogram (ECG) signal ~~wherein there is provided~~comprising means for identifying ~~the~~ an end of ~~the a~~ T wave from ECG data, the end of the T wave being defined as ~~the a~~ first time of intersection at which an upright T wave of a first set of derived ECG signal data intersects an inverted T wave of a second set of derived ECG signal data, the two sets of data being superimposed so as to maximise ~~their data~~ fit over a segment of the ECG signal after a peak of the positive T wave~~peak~~.

21. (Currently amended) ~~An~~The apparatus as claimed in claim 20 wherein the data fit of ~~said data~~ is maximised by a least squares calculation.

22. (Currently amended) ~~An~~The apparatus as claimed in claim 20 ~~or 21~~ wherein the apparatus comprises:

means for acquiring ECG signal data;

means for deriving a first set of reduced noise ECG signal data from the acquired ECG signal data;

means for inverting the first set of reduced noise ~~set of~~ ECG signal data to derive an inverted set of reduced noise ECG signal data;

means for identifying a portion of each set of ECG signal data corresponding to ~~a the~~ the segment ~~after the T wave~~;

means for calculating an offset such as to fit the first set of data to the inverted set of data over said segment;

means for detecting at least one intersection between the first set and the inverted set of data by reference to said offset; and

means for determining ~~the an~~ end of said QT ~~intervals~~ interval by reference to ~~the~~ timing of the detected intersection(s).

23. (Currently amended) ~~An~~ The apparatus as claimed in claim 22 wherein in the means for determining the end of said QT interval, the QT interval is determined by ~~the~~ a first point of intersection.

24. (Currently amended) ~~An~~ The apparatus as claimed in ~~claims 22 or~~ claim 23 wherein the end of the T wave is defined at the first point of intersection in said segment, provided there is at least one other point of intersection after a predetermined interval.

25. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims~~ claim 22 to 24 wherein said interval ~~can be~~ is varied according to ~~the~~ noise content in ~~the~~ a segment of ~~the~~ an ECG deemed to be the isoelectric ~~line~~ baseline segment.

26. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims~~ claim 22 to 24 wherein the means for deriving a first set of reduced noise ECG signal data comprises means for calculating ~~the~~ a median signal for each time from an ensemble of ECG signals for each lead to reduce low frequency baseline noise.

27. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 22 to~~ claim 26 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for smoothing the median ~~ensemble~~ ECG signal with a moving median filter to reduce high frequency noise.

28. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 22 to~~ claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for filtering the ~~median-smoothed, median ensemble~~ signal ECG using a wavelet frequency thresholding technique which subtracts ~~the~~ magnitudes of any non-zero frequency components within the isoelectric baseline ~~segment~~ segment from ~~the~~ a rest of the ECG thus further de-noising it.

29. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 22 to 28~~ claim 27 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for vertically shifting the smoothed median ~~ensembled~~ ECG signal so that ~~the~~ a minimum value after peak of T is zero.

30. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims~~ claim 22 to 29 wherein the means for deriving a first set of reduced noise ECG signal data further comprises means for detecting and correcting baseline drift in the first set of ECG data.

31. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 20 to~~ claim 30 wherein ~~detection~~ the means for detecting includes means for ~~the~~ testing for ~~the~~ presence of a single crossing of one isoelectric line.

32. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 20 to~~ claim 31 ~~wherein there is provide~~ further comprising means for rotating ~~the~~ an ensembled ECG about a zero point or otherwise ~~transformed~~ transforming the ensembled ECG to reconfigure the set of ECG data to have multiple crossings of said line.

33. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims~~ claim 22 to 32 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for applying a non-linear function such as squaring ~~the~~ amplitudes of the signal for all time instants, in order to accentuate features of interest and ensure positive deflections of the T wave.

34. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims~~ claim 22 to 33 wherein the means for deriving a first set of reduced noise ECG signal data further includes means for summing ~~the~~ squared amplitudes of ensembled orthogonal leads over all time instants to give a squared resultant vector ensembled ECG.

35. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims claim 20 to 34~~ wherein the apparatus further includes means for finding ~~the~~ a beginning of the QT interval by an established method, ~~for example from the median of ensembled ECG signals from all 12 leads.~~

36. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims 20 to claim 35~~ wherein the apparatus includes means for calculating the QT interval by subtracting the beginning of the QT interval from the ~~calculated~~ end of the T wave.

37. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims claim 20 to 36~~ wherein the QT interval is measured for ~~the~~ squared vector resultant data derived from quasi-orthogonal or actual orthogonal XYZ leads, and ~~the~~ a longest of QT measurements made in 3 dimensions is made.

38. (Currently amended) ~~An~~ The apparatus as claimed in ~~any of claims claim 20 to 35~~ wherein the ECG signal data is acquired from ~~the~~ a set of standard ECG leads including I, aVf and V2.

39. (Currently amended) A record carrier ~~wherein are comprising~~ recorded program instructions for causing a programmable processor to perform the steps of the method as claimed in ~~claims claim 1 to 19, or to implement an apparatus having the features claimed in any of claims 20 to 38.~~

40. (New) A record carrier comprising recorded program instructions for causing a programmable processor to implement an apparatus having the features claimed in claim 20.